

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 21-24 and 26 are presently active; Claims 14-20 and 25 having been withdrawn from consideration. Claims 1-13 having been previously canceled without prejudice, Claim 21 having been presently amended, and Claim 27 having been added reciting features similar to Claim 21 and shown in Applicants' Figures 1 and 2. No new matter has been added.

In the outstanding Office Action, Claims 21-24 and 26 were rejected under 35 U.S.C. § 112, first paragraph, for failing the enablement requirement. Claims 21-24 and 26 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 21-24 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Held (U.S. Pat. No. 6,030,538) in view of Bushnell et al (U.S. Pat. No. 5,447,733).

Regarding the 35 U.S.C. § 112, first and second paragraphs, rejections to Claims 21-24 and 26, Applicants respectfully submit that how to construct "means for subjecting the flow of effluent to a pulsed electric field that includes adjustable voltage value, current value, pulse repetition frequency, and voltage front shape characteristics" from the description of the corresponding elements 1-5 disclosed in the specification on page 19, lines 12-21. Part of this disclosure (reproduced below for the sake of convenience) provides the basic details and operating characteristics:

The effluent treatment head is marked as reference 5. It comprises an inductance 6 connected in parallel. To charge, the switch is in position and the resistant 5 representing the treatment head is shorted by the presence of the pure inductance 6. To discharge, the switch is on position b, and the higher power switching system consisting of the capacitor 3 and the inductance 4 outputs a discharge with characteristics consisting of a voltage of 5 to 50 kV and a current of 50 to 2600 A for 1 μ s.

As such, one of ordinary skill in the art would know, given the basic operational characteristics of the disclosed switch, capacitor, and inductance, how to make the claimed invention without undue experimentation.

Indeed, the skill of one of ordinary skill in the art at the time of the invention is typified by Held whose background section describes pulsed and RF radiation waste treatment systems and whose invention describes a DC pulsed system. Thus, given the sophisticated level of skill shown by Held for the one of ordinary skill in the art at the time of the present invention and the requirement under M.P.E.P. § 2164.01(a) that the level of one of ordinary skill be considered in an undue experimentation consideration, it is respectfully submitted that undue experimentation would not be required for one of ordinary skill in the art to make the claimed invention. Hence, the 35 U.S.C. § 112, first paragraph rejection, should be removed in view of these considerations.

Regarding the 35 U.S.C. § 112, second paragraph rejection, the recited means for subjecting the flow of the effluents to a pulsed electric field would include elements for changing the voltage value, current value, pulse repetition frequency, and voltage front shape characteristics. No specific recitation of such elements is necessary for Claim 21 to be definite. The examiner's attention is invited to M.P.E.P. § 2173.04 which points out that breadth is not indefiniteness. Hence, the 35 U.S.C. § 112, second paragraph rejection, should be removed in view of these considerations.

Regarding the rejection on the merits, the Office Action acknowledges that Held provides no teaching of a load inductor. The Office Action relies on Bushnell et al for a teaching of a load inductor and state that it would have been obvious "to have modified the apparatus of Held so as to have includes an inductors as suggested in Bushnell et al in order to create a pulsed electric field capable of killing microorganisms."

Yet, the present inductor (as clarified) is not directed to creating a pulsed electric field capable of killing microorganisms, as suggested by Bushnell et al. Rather, the presently claimed inductor reduces the voltage applied to effluent during the capacitor discharge period.¹ Hence, a combination of Held and Bushnell et al., as asserted in the Office Action, would not produce the claimed invention.

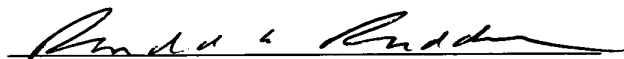
Thus, it is respectfully submitted that independent Claim 21 and the claims dependent therefrom patentably define over the cited references in the Office Action.

New Claim 27 has been added reciting features similar to independent Claim 21 but in non-means format. Claim 27 is believed to be patentable for similar reasons as Claim 21.

Consequently, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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¹ Applicants' Figure 5 shows an inductor 4 in series with the effluent treatment head 5. Accordingly, when switch 2 connects to the "b" connector, a discharge pulse from the capacitor 3 flows through effluent treatment head 5 and the inductor 4. In this configuration, the voltage is divided between the effluent treatment head 5 and the inductor 4, and thus is reduced across the effluent treatment head 5.